STATE OF MONTANA

STATE ENGINEER

SAM W. MITCHELL BUILDING

HELENA, MONTANA

FRED E. BUCK, STATE ENGINEER
HANS L. BILLE, ASSISTANT
C. S. HEIDEL, DEPUTY STATE ENGINEER
A. D. McDERMOTT, ACCOUNTANT

November 30, 1958

Honorable J. Hugo Aronson
Capitol Building
Helena, Montana

Dear Governor Aronson:

In compliance with the provisions of Paragraph 5, Section 81-2007, 1947 RCM, I have the honor to submit herewith the 28th Biennial Report of the State Engineer for the period ending November 30, 1958.

Respectfully submitted,

Fred E. Buck
State Engineer

FEB:ba

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INTRODUCTION

This 28th Biennial Report is being prepared to satisfy the provisions of Paragraph 5, Section 81-2007, 1947 RCM, which covers the activities of the State Engineer's office up to November 30, 1958.

The office of the State Engineer was created by Section 6, Chapter 114, Session Laws of 1903. At that time the state was actively engaged in the construction of Carey Land Act projects and the office of State Engineer was created and he was delegated with the duties of Acting Secretary and Engineer for the Carey Land Act Board. The work of the Board has been gradually decreasing until now there is little activity on Carey Act projects. While the work of the Carey Board has been decreasing, other responsibilities of the office have been gradually increasing. The last few legislative sessions have placed new responsibilities on the State Engineer.

Mr. C. S. Heidel was appointed Deputy State Engineer and began work January 1, 1958.

The first State Engineer appointed was John W. Wade. Succeeding him in order were A. W. Mahon, C. S. Heidel, J. S. James, E. B. Donohue and Fred E. Buck.

CAREY LAND ACT BOARD

When the Carey Land Act was first passed by Congress, August 18, 1894 (28 Stat. 392-422), Montana saw the advantage of its provisions by proposing about a dozen projects. For one cause or another only three projects were finally built under this act - The Valier, Billings Bench, and Glass-Lindsay Projects. The Valier Project and the Billings Bench have both been turned over from the contractors to the water users to own and operate. The Glass-Lindsay Project is still in the hands of the contractor as far as the records are concerned. The Carey Land Act Board has had no business to come before it for board action since its last meeting held November 27, 1953.

For the past many years the Carey Land Act Board has been leasing six tracts of land on the Billings Bench which are the only tracts of Carey Land Act lands left on the project.

August 13, 1954, Congress passed an Act (Public Law 582, 83rd Congress, 2nd Session, Chapter 727, S. 2027), providing for the states to turn back to the federal Government all remaining Carey Act lands undeveloped. The final date for making such application was August 13, 1957. The matter did not come to our attention until a short time before the dead line. On August 5, 1957, application was made to the U. S. Bureau of Land Management in compliance with the terms set out by the statutes for the relinquishment of these Carey Land Act lands to the federal government. At the same time it was requested that the lands be transferred to the Department of State Lands and Investments. The tracts of land in question comprise an area of 679.08 acres. This application was accepted by letter dated September 26, 1957. No further word has been received concerning the application.

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WATER RESOURCES SURVEY

This work consists of compiling a historical record of water resources in Montana and mapping the land served by all water rights. The data are compiled from courthouse records, aerial photographs, court decrees, Secretary of State's office, State Water Conservation Board, U. S. Indian Service, U. S. Reclamation Service, irrigation districts, corporations and all other sources which may be available. After the land and water rights are mapped, data are checked in the field and water users interviewed. Data are published in reports by counties. Part I consists of descriptive matter while Part II consists of colored township maps.

It is hoped when the information is complete for the state, that a modern water code can be enacted. Montana is the only one of the seventeen western states not having a modern water code. Our water right laws are very antiquated and fifty years behind the times. The adjoining provinces in Canada have modern codes similar to our western states excluding Montana. When this survey is completed, it will be the first and only inventory that Montana has ever had of its water rights and water use. These data will prove valuable if the time ever comes when Montana must defend its rights and use against the encroachments of lower states.

To date 21 counties have been completed and reports published which are: Deer Lodge, Silver Bow, Jefferson, Broadwater, Madison, Gallatin, Meagher, Park, Sweet Grass, Wheatland, Rosebud, Golden Valley, Stillwater, Musselshell, Yellowstone, Carbon, Big Horn, Treasure, Custer, Lewis & Clark and Ravalli. The field work has been completed for Granite and Powell Counties and the printed reports will be available during the summer of 1959. Field work is now under way in Carter, Fallon and Powder River Counties covering only its drainage basin of the Little Missouri River. This information is needed in negotiating a compact on the stream between the states of North and South Dakota, Wyoming and Montana.

Of the 21 counties completed to date the following table shows the presently irrigated acres, the additional acres that could be irrigated under present facilities and the total maximum irrigable acres under present favilities:

	Presently Irrigated Acres	Irrigable Acres Under Present Facilities	Maximum Irrigable Acres
Missouri River Basin	454,888	141,553	596,441
Yellowstone River Basin	514,106	171,548	685,654
Columbia River Basin	122,104	4,787	126,891
Grand Total	1,091,098	317,888	1,408,986

The survey has prepared data on the water rights of the North Fork of Musselshell River to be used in a suit filed to adjudicate the waters of that stream. Also, similar data has been prepared for water rights on Mill Creek, Park County.

The following table shows the differences between the acres being irrigated in each county completed by the survey with the acres being assessed as irrigated, as shown by the State Board of Equalization. The acreages shown in column three "Water Resources Survey" includes only the acres being actually irrigated and does not include the potential irrigable acres under present facilities. The irrigated acreages as shown under column four "Board of Equalization" are for the year the field work was done on the water resources survey.

Counties Completed	Date of Report	Irrigated Acres: Water Resources Survey	Irrigated Acres: Board of Equalization
Yellowstone	Oct. 1943	107,405	100,593
Carbon	May, 1946	97,269	70,595
Stillwater	May, 1946	34,721	25,989
Big Horn	May, 1947	65,570	34,958
Custer	July, 1948	37,343	17,051
Rosebud	July, 1948	27,376	28,798
Musselshell	July, 1949	7,929	0
Golden Valley	July, 1949	5,137	1,896
Wheatland	July, 1949	36,618	37,424
Meagher	July, 1950	47,575	38,839
Sweet Grass	Dec. 1950	56,934	35,607
Treasure	Dec. 1951	21,231	17,005
Park	Dec. 1951	63,937	59,582
Gallatin	Jan. 1953	129,984	110,851
Madison	July, 1954	111,996	90,932
Silver Bow	June, 1955	7,006	6,635
Deer Lodge	June, 1955	21,808	25,659
Jefferson	June, 1956	26,280	25,124
Broadwater	June, 1956	42,642	32,190
Lewis & Clark	June, 1957	38,225	39,992
Ravalli	June, 1958	104,569	95,860
	Totals	1,091,555	895,580

The totals of the last two columns indicate that 195,975 acres, or 18% (17.96%) of the lands being irrigated in these 21 counties are not being assessed as irrigated land.

PROJECTS UNDER 1944 FLOOD CONTROL ACT

The Flood Control Act passed by Congress December 22, 1944, provides that whenever a project is submitted to the Congress for authorization, it shall have been previously reviewed by each state in the major basin and written comments on the project submitted by each state. This means that Montana shall review any project proposed in the Columbia River Basin which comprises all or parts of seven states, and the Missouri River Basin which comprises all or parts of ten states. Under this act the following projects have been submitted to the State Engineer's office for review and comments within the past two years:

Mid-State Reclamation District, Nebraska - It is proposed to divert water from the Platte River to irrigate 140,000 acres of land in the southeastern part of Nebraska. It is a multiple purpose project including flood control, power, ground-water replenishment, wild life and recreation. There will be 23 reservoirs and 4 power plants. The project is organized as an irrigation district which will be financed jointly by the federal government and by district bonds.

Red Willow Dam and Reservoir and Associated Works, Nebraska - This proposed project consists of the diversion of water from the Republican River to irrigate 7,650 acres of land located on both sides of the river. A reservoir will be built having a capacity of 88,400 acre feet, of which 59,300 acre feet are for flood control.

Vale Project, Bully Creek Extension, Oregon - This project consists of building reservoirs on Bully Creek to supplement two present reservoirs which supply water to 35,000 acres of land in eastern central Oregon. The project proposes to repay the government the entire cost.

Spokane Valley Project, Washington - This consists of rehabilitating an old project in Spokane Valley which has been irrigated from the Spokane River at Post Falls. Flumes are deteriorating and part of the canal is in danger of being washed out. It is proposed to abandon the present system and irrigate the area with sprinkler systems by pumping from numerous wells. The project is to repay the federal government for the entire amount of the loan within 50 years.

Chief Joseph Dam Project, Greater Wenatchee Division, Washington - This proposed project consists of seven pumping units along the Columbia River below Chief Joseph Dam. At the present time it is proposed to develop only four of these units, which will irrigate 8,660 acres. The amount of water to be pumped is only a small fraction of 1% of the average annual flow of the Columbia River. This small demand will have no appreciable effect on Montana water supply, neither will the future consumptive water supply in Montana have any noticable effect on the water supply for the four units proposed.

Note - Aside from the Wenatchee Project none of the other projects noted above divert water from streams rising in Montana. Neither will the use of Montana water in future development affect the water supply of any of these projects.

FLOOD CONTROL, CORPS OF ENGINEERS

The Flood Control Act passed by Congress provides that the Corps of Engineers, U. S. Army, may build small projects without congressional authorization. They do, however, require approval of the local authorities and of the state. Within the past two years only two projects in Montana have been submitted for review by the State Engineer.

Great Falls - On June 30, 1948, the Corps of Engineers held a public hearing in Great Falls regarding flood control of Sun River. On April 9, 1957 another hearing was held in Augusta. Under date of April 18, 1957 the Corps of Engineers submitted an interim report on the matter. A favorable report on the plans developed was dated October 14, 1957, and submitted to the Congress on February 13, 1958. The plan provides briefly for 8 miles of levees, 3.75 miles of intercepter ditches, channel rectifications and pertinent works. The plan is predicated upon no as-

sistance from upstream irrigation reservoirs. If the Sun Butte Dam or any other proposed reservoir on the Sun River drainage should be authorized for construction before the flood control works is built, the plans of the Corps of Engineers will be revised accordingly.

St. Regis River - Under this project it is proposed to clear the channel of St. Regis River from Taft to its mouth. There are 17 bridges along this length of river that are vulnerable to debris-laden floods. Three of these are main highway bridges, five are railroad bridges and the other nine are secondary road crossings. The cost is estimated (1958) at $89,000.00 with annual maintenance at $7,500.00 each three-year period.

IRRIGATION DISTRICTS

Montana law authorizing the creation of irrigation districts (Section 89-1201 (3) RCM 1947) provides that the State Engineer shall submit to the court his written report embodying:

(1) Engineering features
(2) Possibility of water supplies
(3) A copy of the decreed water rights

Within the past two years only one irrigation district has been formed; that of the East Bench Irrigation District in Beaverhead County. The project consists of a storage dam on the Beaverhead River at Clark Canyon having a storage capacity of 261,000 acre feet. At the foot of the Canyon near Barretts a diversion dam will be built from which a main canal will divert water to the East Bench, serving 21,300 acres of new land. The project will also supply supplemental water to 28,400 acres in the Beaverhead valley. The District has been created.

WATER WELLS

Artesian Wells - The 30th Session of the legislature 1947 passed a law (Sec. 89-2901-2910 RCM 1947) providing that logs of all artesian wells drilled in the state shall be filed with the State Engineer's office. The difficulty with this bill is that it contains an erroneous definition of an artesian well. This means that a great many wells which are truly artesian under correct definition do not come under the provisions of this law. This law became effective July 1, 1947. The following are the number of logs filed under this provision:

Total number of wells filed previous to Nov. 30, 1956	483
Number filed in 1956 after Nov. 30	8
Number filed in 1957	25
Number filed in 1958 (up to Oct. 31)	10
Total	526

Water Wells - The 1957 Session of the legislature passed a law (Chap. 58) providing for the filing of data on all water wells drilled in the state. This measure was approved March 1, 1957 and all acts in conflict with it were repealed.

The purpose of this act was to provide a method of filing a record of each well which record may be useful at some future time if it ever becomes necessary to adjudicate any particular water strata or aquifer. The trouble with this law is that it contains no penalties for noncompliance.

The State Bureau of Mines and Geology was instructed to compile and have printed the necessary forms. Data on each well is to be filed within 60 days after completing the well. Three copies of the form are to be filed with the County Clerk and Recorder in the county wherein the well was drilled. He, in turn, will keep one copy, send one to the State Engineer, and one copy to the State Bureau of Mines and Geology, Butte. The information to be filed consists briefly as follows:

(a) Name of landowner
(b) Well began _____, completed _____
(c) Name and address of driller
(d) Location of well
(e) Description of well
(f) Capacity of well
(g) Use to be made of well
(h) Surface elevation of well
(i) Casing record
(j) Log of well
(k) Depth of well
(l) Depth to water horizon and how high water rises in casing.

Since this law became effective 1,263 logs have been filed with the State Engineer's office (up to Oct. 31, 1958). The number of wells in each county is as follows:

County	No.	County	No.	County	No.
Beaverhead	37	Granite	12	Powell	16
Big Horn	1	Hill	21	Prairie	20
Blaine	19	Jefferson	6	Ravalli	34
Broadwater	47	Judith Basin	32	Richland	36
Carbon	23	Lake	7	Roosevelt	17
Carter	26	Lewis & Clark	22	Rosebud	17
Cascade	12	Liberty	10	Sanders	6
Chouteau	59	Lincoln	16	Sheridan	24
Custer	17	McCone	13	Silver Bow	23
Daniels	6	Madison	27	Stillwater	18
Dawson	14	Meagher	11	Sweet Grass	0
Deer Lodge	43	Mineral	14	Teton	5
Fallon	10	Missoula	35	Toole	2
Fergus	47	Musselshell	45	Treasure	2
Flathead	40	Park	20	Valley	38
Gallatin	76	Petroleum	59	Wheatland	1
Garfield	16	Phillips	76	Wibaux	5
Glacier	5	Pondera	3	Yellowstone	47
Golden Valley	25	Powder River	0		

STREAM MEASUREMENTS

The work of measuring surface flows in streams is carried on jointly by the State Engineer and the U. S. Geological Survey. Each agency contributes one-half of the expense while the actual field work and compiling of data is done by the Geological Survey. These records are very valuable in the design of dams, spillways, reservoirs, bridges, irrigation projects, water supplies, sewage disposal, etc.

The appropriation by the legislature for routine stream gaging operations was $30,200.00 for each year of the present biennium. Fifty-nine gaging stations were operated during the first year and sixty-two during the second year under this program. An additional eight stations were partially financed under this program during the first year and thirteen during the second year.

During the present biennial period gaging stations were constructed at the following locations:

Big Coulee near Lavina
Burns Creek near Savage
Lime Creek near Tampico
Sand Creek near Jordan
Racetrack Creek near Anaconda
Box Elder Creek near Winnett
South Fork Judith River near Utica
St. Regis River near St. Regis
German Gulch near Ramsay (reconstructed)

Stations were re-established on:

Little Powder River near Broadus
Wolf Creek near Wolf Point
Skalkaho Creek near Hamilton

Stations were discontinued on Big Spring Creek near Lewistown, Brackett Creek near Clyde Park, Shields River near Wilsall and East Fork of Bitterroot River at Conner. It was felt that sufficient records had been accumulated at these points, and by correlation with measurements on other similar streams, the records at these discontinued stations could be projected if necessary.

It was felt that more information should be accumulated on floods of intermittent streams in eastern Montana. These data are especially needed in estimating the sizes of bridges and culverts, and the design of dams and spillways in the prairie area. Accordingly, crest-stage gages for obtaining high water information only have been installed at three sites in the Jordan area, two in the Glasgow area and three in the Intake area. Six partial record stations in eastern and central Montana have also been established for obtaining low flow data as well as peak stage records..

Yellowstone River Compact - The last legislature appropriated $1,750.00 per year as Montana's share to operate the Yellowstone River Compact. Wyoming contributes a similar amount and the United States Geological Survey matches these two state

appropriations on a 50-50 basis. The money is used to operate seven gaging stations as provided for in the Compact and for computations, preparing an annual report, and for administration. Under the terms of the Compact the State of North Dakota is not required to supply any of the funds nor does it take part in the annual meetings.

International Waters - The 1957 legislature appropriated to the State Engineer's office $2,500.00 per year for this biennium to carry on work along the international border. Of this $5,000.00 appropriated for the biennium, a total of $2,500.00 has been allocated to maintaining several gaging stations along the border which money has been matched by the Geological Survey. Records of flow of numerous international streams are necessary in considering the various References before the International Joint Commission. We need to know the amount of water crossing the boundary in each particular case, which justifies the allocation of the above money to be used for this purpose.

INSPECTION OF DAMS

The law provides (Section 89-702 RCM 1947) that whenever a dam is built and interests below the dam are apprehensive that the structure is not safe, they may petition the State Engineer for an inspection of the same and he shall file his findings with the County Attorney of the county wherein the dam is located, who shall then take whatever action is necessary to abate the danger.

During the past two years only one case of this kind has come to the attention of the State Engineer. This was the Gartside Dam on Crane Creek, a short distance west of the town of Sidney. The project was examined on August 14, 1956, and found to be in poor condition, and on August 28 the County Attorney was so notified. The dam was built for fishing and recreation by the Richland County Sportsmen's Club, subsidized financially by the State Fish and Game Department. Construction was carried on during the winter and spring of 1956 and part of the fill was put in while the dirt was frozen. The dam crosses a cattail swamp and no provision was made for draining the foundation. Consequently, the lower side of the dam had been gradually slipping and settling. The spillway is an open cut without any protection from erosion. There are no outlet works provided for draining the reservoir or relieving the spillway in times of flood. Since the inspection was made considerable work has been done on the dam to correct the deficiencies but nothing has been done to prevent the spillway from washing out in a severe flood.

COMPACTS

By law (81-2009 RCM 1947) the State Engineer shall act as Compact Commissioner in negotiating compacts and agreements with other states. These agreements, however, do not become effective until ratified by the State Legislature. At the present time we have only one compact effective, which is the Yellowstone River Compact negotiated between the states of Wyoming, North Dakota and Montana.

A compact is being negotiated at the present time between the seven states in the Columbia River Basin for the Columbia River. Also, another is being negotiated on the Little Missouri River between the states of North and South Dakota, Wyoming and Montana.

There is an agreement (Treaty of 1909) which in reality is in the nature of a compact between the United States and England for the division of the waters of St. Mary's and Milk Rivers along the international boundary.

Yellowstone Compact - (See State Engineer's Biennial Report of two years ago for history of negotiating the compact).

This compact provides briefly that water rights perfected prior to January 1, 1950, shall remain status quo and not be disturbed. Only water filings made after that date shall be subject to the terms of the compact, and no water shall be diverted outside the basin. It also provides that the State Engineers of Montana and Wyoming, and the Director of the U. S. Geological Survey shall serve as the Commission to operate the compact. The federal representative shall be the Chairman and has no vote except in the case of a tie.

The first preliminary commission meeting was held in Helena July 15-16, 1952. It was decided that the official meeting time should be each year on the 3rd Tuesday of November alternating between the states of Wyoming and Montana. The first regular meeting was called in Sheridan, Wyoming, November 25, 1952, and regular meetings have been held each year since then at the appointed time and alternating between the two states.

Nothing of particular interest has been presented at the annual meetings of the commission until the meeting in Billings on November 26, 1957. At that meeting the Geneva Steel Company presented a matter which it considered should have the approval of the commission. The company is planning on the development of a large iron deposit near the old mining town of Atlantic City, Wyoming, which is located on the Platte River side of the divide at the head of Big Horn River.

In 1888 a gold mining company built a reservoir at the head of one of the tributaries of the Big Horn River, and constructed several miles of canal to deliver water from the reservoir for placer mining around Atlantic City. These rights have never been declared abandoned by the state of Wyoming although the water has not been diverted and used for a number of years. The Geneva Steel Company plans on buying this right together with other irrigation rights dating from 1871 to 1888, and diverting five second feet across the divide to operate the proposed steel mill.

The proposal involved two conditions contained in the compact. Namely, (1) that the compact had no jurisdiction over water rights perfected prior to January 1, 1950, and (2) that no water could be diverted out of the Yellowstone River basin. After a long discussion of the matter it was concluded that the provisions of the compact could not be invoked in this particular case.

It was found necessary to keep a compilation of the water rights filed in the two states after January 1, 1950. Under Wyoming laws such a record is readily available but according to Montana water right laws there is no provision that would render such a compilation possible. Accordingly, the Montana legislature passed, in 1953, Chapter 92, which provides that copies of all water right appropriations filed in the Yellowstone Basin in the area affected by the compact shall also be filed with the State Engineer's office.

A tabulation has been prepared of all water rights filed since January 1, 1950, as submitted by the respective County Clerk and Recorders. Most of these filings are on coulees, springs and drains, and are inconsequential in affecting Montana's percentage of the total water supply of major streams.

The compact provides for maintaining stream gaging stations in order to keep a record of the water supply allotted to each state under terms of the compact. The stations maintained for this purpose are as follows: Clarks Fork at Edgar, Little Big Horn River near Crow Agency, Agency Canal at Crow Agency, Little Big Horn River near Hardin, Big Horn River near Custer, Tongue River at Miles City, Powder River near Locate. Also records are kept on the operation of the Boysen Reservoir on the Big Horn River in Wyoming which is a new reservoir built since the compact came into existence.

Little Missouri River Compact - The Congress passed a Consent Bill (Public Law 85 - 184) which was approved August 28, 1957, providing for the negotiation of a compact on the Little Missouri River between the states of North and South Dakota, Wyoming and Montana.

On January 11, 1958, Major General John S. Seybold (retired) was appointed as the Federal Chairman. His first visit with the State Engineer of Montana was on February 14, 1958. The first meeting of the compact commission was held in Bismarck, April 24, 1958. No meetings have been held since then. There were sixteen present at this meeting, including the Chairman, Governor Davis of North Dakota, the four State Engineers, the State Engineer of Missouri and federal representatives. An Engineering Board was appointed consisting of the four State Engineers. They are to collect data on water rights and stock water ponds. The Bureau of Reclamation presented an outline of its activities within the basin, and the Geological Survey presented a record of stream gaging stations.

The matter of type of compact was discussed, that is, whether it should be recommendatory in nature or an action compact. Also it was thought by some that the compact should be set up recognizing priorities of water rights throughout the entire length of the stream regardless of state lines. After the meeting adjourned it was discovered that the Congressional Subcommittee made this suggestion:

> "The committee suggests that it may be wise for the states to limit the compact to the apportionment of water and defer at this time, so far as the compact is concerned, the matter of development of the Little Missouri Basin."

On July 1 and 2, 1958, a trip was made over the basin by the Chairman and the State Engineers of North and South Dakota, and a representative of the Geological Survey.

Late this fall the field crew of the Water Resources Survey of Montana was transferred to the Little Missouri Basin to secure the required data on water rights and uses in Montana. If good weather continues for another month the field work will probably be finished this fall. The office work will take a good share of the winter period so that the required data for Montana should be ready for use by next spring.

The United States Geological Survey, Bismarck, North Dakota, prepared a list of gaging stations on the Little Missouri River and tributaries, and also a list of chemical quality and sedimentation records available as of April 19, 1958. These stations and the periods of available records are:

Main Stem

Little Missouri River near Alzada, Montana -- June 1911 to September 1925, August 1928 to September 1932, March 1935 to April 1958.

Little Missouri River at Camp Crook, South Dakota -- October 1903 to November 1907, May 1956 to April 1958.

Little Missouri River at Marmarth, North Dakota -- March 1938 to April 1958.

Little Missouri River at Medora, North Dakota -- May 1903 to October 1908, October 1921 to September 1924, August 1928 to September 1934, October 1945 to September 1956.

Little Missouri River near Watford City, North Dakota -- October 1934 to April 1958.

Tributaries

Little Beaver Creek near Marmarth, North Dakota -- April 1938 to April 1958.

Beaver Creek at Wibaux, Montana -- April 1938 to April 1958.

The chemical quality and sedimentation records are available on the Main Stem at Alzada, Montana - Marmarth, North Dakota - Medora, North Dakota and Watford City, North Dakota.

Columbia Interstate Compact - Consideration of the necessity for a Columbia River Compact was first initiated as far back as 1911 by Governor Oswald West of Oregon. In 1925 the Congress passed a Consent Bill authorizing the states of Oregon, Washington and Montana to enter into a compact for the allocation of water of the Columbia River. Nothing was done about it until 1943 when a conference of the Governors of Oregon, Washington, Idaho, Montana and Wyoming met in Boise, Idaho, and created the Northwest States Development Association which had as one of its objectives the development of a compact. The State Engineer of Montana was Secretary of this organization. From 1944 to July, 1949, no further action was taken but in July, 1949, Governor Langlie of Washington undertook to initiate a compact. He called the first meeting in Spokane on July 10, 1950, where the states of Idaho, Montana, Oregon, Washington and Wyoming were represented. It was decided that Nevada and Utah should also be included and that Canada should be invited to participate. Numerous meetings thereafter were held.

On July 16, 1952, a Consent Bill was approved by the United States Congress (Public Law 572, 82nd Congress, 2nd Session). It did not, however, include the states of Utah and Nevada and, consequently, it was amended later to include these two states.

The Montana Legislature passed JHR 6 in the Session of 1951 authorizing the

Governor to appoint members of a Montana Commission who would assist the State Engineer in negotiating the compact. This was approved February 3, 1951. Appointment of the members, however, was not made until a short time after the 1953 Legislature adjourned. In the meantime the State Engineer, under authority vested in him to negotiate compacts (81-2009 RCM 1947), attended the meetings and carried all of the responsibility for Montana's interests. The compact was finally completed and signed in Portland by all participating states on January 15, 1955. The compact was adopted by the legislatures of the states of Idaho, Utah and Nevada but failed to pass in Oregon, Washington and Montana. It was not introduced in the legislature of Wyoming. Before being presented to the Congress for ratification, it needs to be approved by only four states - Oregon, Washington, Idaho and Montana. The other three states may approve it at any later time if they so desire.

The transactions that have transpired since 1955 are briefly as follows: In the summer of 1956 several members of the commission discussed the proposed compact with federal representatives in Washington D. C. An agreement was reached on points of question.

The full commission met in Portland on August 6, 1956, when a few changes were made and a full draft of the compact was approved but not signed. The draft was then printed, given wide circulation and many public hearings were held.

On December 4, 1956, the full commission met in Spokane and signed the new compact. It was presented to the legislatures in 1957 with the following results: Idaho, Wyoming, Nevada and Utah - no action was taken; Montana introduced but no hearings held nor action taken; Oregon introduced, extensive hearings held but no action taken; and in Washington, a bill was prepared but not introduced.

The next meeting of the compact commission was held in Spokane on April 13, 1957, to consider changes in the provisions. The date of May 1, 1958, was set as the final time when all suggested changes must be submitted. It was decided to attempt to write an action compact rather than a recommendatory one. A special committee was appointed to study this matter.

The action committee met in Seattle August 19, 1957, at which time it authorized that a request be made of each State Attorney General as to whether or not the respective state could participate in an interstate agency with authority to issue revenue bonds. All states except Idaho reported that such a procedure would be constitutional. The Idaho Attorney General finally reported that this matter would have to be determined by court opinion and legislative action.

The full commission met in Portland, Oregon, on May 16 and 17, 1958, and accepted reports of the various committees and named a drafting committee to prepare a new draft "excluding provisions relating to power except for allocation of power and all revenue bond financing". This committee met in Spokane, July 30 and 31, 1958, and prepared a new draft, eliminating the allocation of power as well as authority to issue bonds to finance projects.

The full commission met again in Spokane, September 12, 1958, to consider

this draft. At this meeting Oregon and Washington refused to support the new draft on account of it not having provisions to issue bonds to finance projects. Many of the articles were controversial in nature and therefore referred to the various committees for redrafting.

The next meeting of the full commission was set for October 13, 1958, but this was cancelled for the reason noted below, and no further meetings have been held since then.

On September 26, 1958, Governor Albert D. Rossellini of Washington, and Governor Robert D. Holmes of Oregon, met in Seattle and passed the following resolution:

> "It is the concensus of the majority that the Oregon and Washington delegations shall attend the Columbia Interstate Compact Commission meeting at Spokane on October 13, 1958; and
>
> (1) Attempt to reinstate action authority with respect to power or
>
> (2) Failing that, owing to the nearness of legislative sessions, the delegations shall report to their respective legislatures that agreement could not be reached. The delegations will recommend that:
>
> (1) The present authority for negotiations should be terminated; and
>
> (2) New legislation should be drafted, providing for exploration of possibilities for an Interstate Compact in those fields in which it is felt agreement can be reached, namely, pollution control, priority of beneficial consumptive use in the upstream area and prohibition of out-of-basin diversion of water."

Under the circumstances it appears that the compact has come to an impasse that cannot be resolved, and therefore there will not be a compact ready for submission to the coming legislatures of 1959.

Mr. Calvert Anderson, who has served as Secretary for the entire period of negotiation, resigned as of October 15, 1958. The books were audited as of October 6, 1958, which showed a balance in the checking account of $10,819.83. Montana's biennial contribution has been 23½% of the $65,000.00 set up for a minimum budget, or $15,275.00.

<u>Montana Section</u> - The Montana members of the Compact Commission are; Glenn H. Larson, Thompson Falls, Chairman; Fred E. Buck, Helena; L. A. Colby, Missoula; W. A. Groff, Victor; John J. MacDonald, Jordan; James E. Murphy, Kalispell; Robert L. Neils, Libby; C. H. Raymond, Hamilton; Donovan Worden, Missoula.

Montana members serving on standing committees are: Executive, Glenn H.

Larson, Chairman; Budget and Finance, C. H. Raymond, Chairman, and W. A. Groff; Engineering, Fred E. Buck and Robert J. Neils; Fisheries, L. A. Colby, Chairman; Legal, James E. Murphy, Chairman, and Donovan Worden; Pollution Control, Fred E. Buck and John J. MacDonald; Power, Donovan Worden and W. A. Groff; Special Action Study, Glenn H. Larson and James E. Murphy; Drafting, Glenn H. Larson and James E. Murphy.

Within the last two years there have been two regular meetings of the Montana Section which are the 7th and 8th since compact negotiations were started. The 7th meeting was held March 21, 1957, in the Governor's Reception Room, State Capitol Building, Helena. It was held for the purpose of considering what changes Montana would desire in the last draft of the compact submitted to the various legislatures, and also, to select Montana representatives for the various standing committees. It was also decided that if Oregon and Washington still insisted on an action compact that Montana might concede somewhat on this point.

The 8th meeting was held September 27, 1957, in the Governor's Reception Room, State Capitol Building, Helena. The chief purpose of this meeting was to determine Montana's desires on the many changes offered at the general compact meeting of June 20 and 21, held in Spokane.

St. Mary and Milk Rivers - The Treaty of 1909 between the United States and Great Britain provides that the St. Mary and Milk Rivers are to be treated as one stream for the purpose of irrigation and power and the water shall be apportioned equally between the two countries of the United States and Canada. It was agreed that during the irrigation season the United States is entitled to a prior appropriation of 500 second feet of Milk River or 3/4ths of its natural flow, and that Canada is entitled to a prior appropriation on the St. Mary River of 500 second feet or 3/4ths of its natural flow during the irrigation season. "_ _ _ _ _ _ _ in making such equal apportionment more than half may be taken from one river and less than half from the other by either country so as to afford a more beneficial use to each".

INTERDEPARTMENTAL ADVISORY COUNCIL ON NATURAL RESOURCES

The Legislature of 1953 passed Chapter 95 (Section 82-3001-3003 RCM) which created the Interdepartmental Advisory Council on Natural Resources for the purpose of studying the natural resources of the state and recommending to the Governor any revisions or new legislation that might be necessary. The Council consists of seven ex-officio members or heads of various departments. To date there have been twenty-five meetings held, the first one being on July 21, 1953, and the last on September 10, 1958. The Council has investigated many subjects, some of which are forestry - both state and national - public lands, topographical surveying, water resources, state forest nursery, oil and gas, fish and game, state lands, state parks and highways. During the past year the State Engineer has been Chairman. Numerous recommendations were made to the Governor for consideration in the Legislative Session of 1957 and a good many of them were adopted. Further recommendations will be made to the Governor for consideration during the Legislative Session of 1959.

[illegible]

STREAM POLLUTION COUNCIL

In the Legislative Session of 1955 Chapter 142 was passed providing for the creation of a State Water Pollution Council. This Council is to work with the State Board of Health and was created for the purpose of abating and preventing the pollution of our streams. Membership is composed of the executive officer of the State Board of Health, the State Fish and Game Director, the State Engineer and four members appointed by the Governor.

On September 11, 1956, a public hearing was held in Billings for the purpose of determining what could be done to alleviate pollution of the Yellowstone River. There was a good attendance representing industry and municipalities. It was concluded that each contributor to the pollution of the stream would take measures to correct the situation.

On June 10, 1958, a public hearing was held in Billings for the purpose of classifying and setting up criteria for the Yellowstone River and its tributaries. At this meeting considerable discussion was held regarding the progress being made in cleaning up the Yellowstone River.

On September 3, 1958, a public hearing was held in Missoula for the purpose of approving standards of water purity and quality and classifications for the Clark Fork of the Columbia River and its tributaries, except the Flathead River. The meeting was well attended and the proposed classifications were approved.

On September 4, 1958, a public hearing was held in Kalispell for the purpose of approving standards of water purity and quality and classifications for the Kootenai River, and the Flathead River to its point of confluence with the Clark Fork of the Columbia River and its tributaries. The proposed classifications were approved.

WATER MANAGEMENT COMMITTEE, COLUMBIA RIVER

Several years ago the Columbia River Inter-Agency Committee established a sub-committee known as the "Water Management Committee". The purpose is to keep an orderly record of the water supply, the proper establishment of key gaging stations and management of the reservoir storages so as to reduce floods to a minimum in the lower part of the basin and at the same time plan a sufficient water supply to meet the power and navigation needs for the entire season. In the spring of the year a careful study is made of all of the snow courses and estimates prepared of the expected run-off during the flood season. With these data at hand an inventory is made of all of the storage in reservoirs in the basin and plans are carried out to deplete the storage as much as possible so that the space will be vacant to store flood waters when the spring run-off starts. The State Engineer was chosen as a member of this committee. Meetings are held once a month, usually in Portland, Oregon where a minimum working staff is maintained.

HYDROLOGY COMMITTEE

This is a Subcommittee of the Columbia Basin Interagency Committee. Its purpose is to study the records being obtained on climate, snow surveys, stream measurements, evaporation, historical flows, and all other phases of hydrology which affect the flow of the Columbia River. The Committee is also delegated to study the geographical locations of all types of gaging stations and determine the adequacy or insufficiency of such stations. Data obtained by this committee is necessarily for the use of the Water Management Committee.

The Hydrology Committee was organized several years ago, the membership consisting of federal representatives only. At the 39th meeting held in Portland, July 25, 1957, it was decided that the four major states - Oregon, Washington, Idaho and Montana - should have representation on this committee. Accordingly, Governor Aronson appointed the State Engineer, October 11, 1957, to serve as Montana's representative. The Committee, at present, consists of members from the four states named, the Federal Power Commission, Bureau of Reclamation, Geological Survey, Weather Bureau, Soil Conservation Service, Corps of Engineers, Forest Service and Bonneville Power Administration. The Committee meets once a month in Portland, the day previous to the meeting of the Water Management Committee.

WATER DEPLETION STUDY - COLUMBIA RIVER

The State Engineer's Report of two years ago explained the reason for making a water depletion study of the Columbia River caused by future development of potential irrigation up to the year 2010. The purpose of this study was to determine how much the developments would deplete the normal flow of the basin at given points along the river. During the last biennium this report was completed.

It shows that in the Kootenai River Basin in Montana 55,000 acres of new land will be developed by the year 2010, which will deplete the flow of the river where it leaves the state by 59,000 acre feet or less than 1% of the normal flow.

Within the Clark Fork Basin it is estimated that 645,000 acres will be developed by the year 2010, which will deplete the river where it leaves the state by 882,000 acre feet or approximately 5.7% of the normal flow of the river.

At The Dalles the flow will be depleted by 9,800,000 acre feet due to all upstream potential irrigation development by the year 2010.

In computing all of the above depletions, returned flow and evaporation from lakes and reservoirs has been taken into account.

INTERNATIONAL PROBLEMS

There are four References before the International Joint Commission pertaining to water matters between Montana and Canada, none of which have been discharged. They are Libby Dam and Reservoir on the Kootenai River; Waterton-Belly

Rivers; Souris-Red; and Sage Creek. The State Engineer's office has done considerable work on all of these References. He has been a member of the International Engineering Board on the Waterton-Belly and Sage Creek References and advisor on the Souris-Red and Libby Dam. To date these Engineering Boards have not been discharged.

Libby Dam - The Reference before the International Joint Commission is dated March 9, 1944. Permission is sought to build a dam on the Kootenai River near the town of Libby, Montana, for the purpose of generating power and flood control. The proposed reservoir will back water into Canada some 52 miles.

On April 8, 1955, the Commission made the following accouncement:

> "It was announced that further consideration could not be given to the application of the United States Government for approval of a dam and reservoir on the Kootenai River near Libby, Montana, until the Canadian Government's investigation of alternative uses of the Kootenay waters in Canada has been completed. One of the Canadian proposals is to divert part of the Kootenay River flow into the Columbia River at Canal Flats, in order to generate additional power at sites in Canada. Such a diversion is permitted under the Boundary Waters Treaty of 1909, but would materially reduce the amount of water available for storage and generation at the proposed Libby site. The Commission was given details of this and other possibilities for the maximum development of the water resources of the Columbia basin which are now under investigation by the Canadian Government."

Canada is still exploring the mentioned possibilities, and nothing further has transpired during the last two years.

Waterton-Belly Rivers - This Reference is dated January 12, 1948, and was finally prepared after two years of previous negotiations. Considerable field work on the project was done by the Bureau of Reclamation prior to the date of the Reference. These two rivers rise in Glacier National Park and flow northward into Canada. Under the treaty, Montana is entitled to its share of the water but in order to use it, diversion will have to be made in Canada and brought back into Montana east of the mountains.

The original Engineering Board, appointed by the Commission, was given four problems to resolve. They succeeded fairly well until the fourth was reached which reads as follows: "To conduct necessary investigations and to prepare a comprehensive plan or plans of mutual advantage to the two countries for the conservation, control, and utilization of the waters under reference in accordance with the recommended apportionment thereof". This brought about an impasse which resulted in two engineering reports being written - one by the Canadian Engineers and the other by the United States Engineers.

No further engineering work was done on the project until October 7, 1953, when the Commission appointed a new Engineering Board to consider the report previously submitted by the Canadian Engineers. This new committee's report was submitted February 25, 1954, and was not acceptable to the Canadians. As a result the Commission on April 8, 1955, had this to say about the project:

"After a thorough investigation and protracted negotiations, the Commission has been unable to reach a solution which might be jointly recommended to both Governments for an acceptable basis on which to apportion the waters of the Waterton and Belly Rivers between the State of Montana and the Province of Alberta. In consequence, the Commissioners will not report direct to their respective Governments on this matter."

This thought was expressed in the form of a resolution presented to the Commission by the Chairman of the Canadian Section. The three Canadian members voted for the resolution and the three United States members voted against it. This situation brought to a close any further negotiations by the IJC, and Canada is proceeding with the construction of its project of 510,000 acres to be irrigated in Alberta predicated on the use of all of the water of the Waterton and Belly Rivers.

Souris-Red - The Souris-Red Reference includes all of the streams crossing the international border between the east crossing of Milk River and the Red River of the North in North Dakota. The Reference is dated January 12, 1948, and an International Engineering Board was appointed April 7, 1948. The last report of this board was dated September 29, 1950. The State Engineer made a field trip with representatives of the Indian Department and Bureau of Reclamation on May 2-4, 1955, in the matter of examining some of the disputed projects. No action so far has been taken by the Commission to settle this Reference.

Sage Creek - Sage Creek rises in the Cypress Hills in Canada, flows southward across the border and dissipates in a large glacial lake in Montana with no outlet. The earliest water rights are in Montana. The Reference before the Commission was dated April 8, 1946 (IJC Docket 53). The final report of the International Engineering Board was submitted in October, 1949, and since that time yearly reports have been submitted showing the flow of the stream and the amount of water which crosses the border.

On October 4, 1951, the Commission appointed an International Land Use Board to study the classification of soils and the most economical application of water to the land. This final report was dated March 2, 1953.

A plan of settling the matter was finally drafted by the Commission and submitted to the Canadian farmers, at Medicine Hat on February 11, 1955, who approved it. The same plan was submitted to the Montana farmers at a meeting in Havre on September 4, 1955, and the same was found acceptable to them.

The plan is briefly as follows: The Canadians will build a reservoir of 7500 acre feet capacity on Sage Creek in Canada and a diversion canal to the international boundary. This work will be paid for by Canada. The Montanans will be required to maintain the canal and will be given a permit to enter Canada for this purpose. The apportionment of water in the reservoir between the two countries will be on a sliding scale depending on how much water is in storage at the beginning of the irrigation season. The Canadians will organize an association to maintain the reservoir and divide the water according to the agreement. If, for any reason, the Montanans are dissatisfied at any time with the acts of the association, they will be given the privilege of placing their complaint directly before the International Joint Commission.

After this plan was finally agreed to the United States section of the Commission insisted that the plan should be approved by the State of Montana. This meant legislative approval as there is no department of the State that can approve an agreement with a foreign country. Accordingly, the Governor recommended in his message to the 35th session, 1957, of the State Legislature, that he be given the privilege of approving the plan. The legislature thereupon passed Chapter 23 which gave the Governor the requested authority. It was approved February 19, 1957, and given full force and effect from and after its passage.

At the semi-annual meeting of the IJC held in Ottawa on October 1, 1957, the matter was given full discussion and the following extracted from the Minutes of that meeting:

> Chairman McNaughton of the Canadian section read a statement of February 19, 1957, from the Canadian Department of Agriculture concerning the Sage Creek Project. Said statement advised that on present estimates the project cost would be about $400,000.00 rather than the $250,000.00 previously estimated, and therefore, the project is not justified because the benefits would be limited to the few land owners directly affected in the basin. Thus, the possibility of development of a plan that would have provided a solution to the project has been removed. One of the Canadian commissioners reported that part of the difficulty was that the new Canadian Minister of Agriculture failed to agree with the previous proposal of the works planned. No immediate action was possible at this time but one of the Canadian commissioners agreed to contact the Canadian Department urging support of the Province. Since that time this commissioner has retired. In the meantime, the Commission will complete its report to the respective governments.

In view of the fact that inflation intervened between the time of the agreement of the plan and the present, which nearly doubled the estimated cost, it is not very likely that any further consideration of the proposal will be given by the IJC.

Every fall prior to the freeze-up, a representative of the U. S. Government and one from Canada have made a field trip to inspect the condition of Sage Creek and have any obstructions removed that might impede the spring flow before the winter's ice and snow melts.

Mr. Sumner Heidel has represented the United States and also Montana, and Mr. Jack Reid has represented Canada and Alberta.

On April 3, 1958, a conference was held with Mr. Reed regarding the matter, at which time it was decided to discontinue these inspections. Although the International Joint Commission has not discharged the committee or ordered the inspections stopped, it was deemed unnecessary in view of the inconvenience, expense in comparison with benefits derived, and action of the IJC in not approving the project for construction as previously agreed upon.

SURVEY OF ISLANDS - YELLOWSTONE RIVER

There are several islands in the Yellowstone River near Glendive which are located on an oil and gas dome and are thought to be quite valuable. The question arose as to whether or not these islands belonged to the state or to adjoining property. A survey of the main island was started on October 19, 1955, and completed on December 8. While making a study of the flow records of the river over the past 55 years, it was concluded that the island was submerged for an average of six weeks during the high water period which would establish its status as a sandbar rather than an island. One of the largest trees which could be found was cut down and the annual rings determined its age as 62 years which would indicate the period of its germination at no earlier than the year 1892. Since the state was admitted into the Union in 1889 and the age of the tree could not date back prior to 1892, it was concluded that ownership rests with the state.

Surveys were not made of the other islands pending the outcome of this main island. There may be some litigation in the matter before the case is finally closed. Further action rests with the State Attorney General.

MISSOURI RIVER RESERVOIR CONTROL COMMITTEE

A committee of 16 was organized by the Corps of Engineers to study the flow of the Missouri River and to work out semi-annual operating plans for the major reservoirs. This committee is composed of representatives of nine states affected together with seven members of federal departments. The State Engineer represents Montana. The first meeting of the committee was held September 17, 1954. Since then, two meetings have been held each year - one in the spring and one in the fall.

On April 29, 1958, the Committee held its first public hearing at Omaha for the purpose of giving all affected interests an opportunity to express their views on the operation of the Missouri River Reservoirs. The meeting was well attended by representatives from industry, barge lines, railroads, truck lines, municipalities, Chambers of Commerce and many individuals. After reviewing the evidence submitted it appears that the general consensus of opinion was that the Committee had done an excellent job, especially when considering the deficiency of water to fill the two reservoirs recently completed. It was realized that it will take several years before this system can be operated at 100% efficiency with all reservoirs filled.

The following table shows, in 1000 acre feet, the maximum storage capacity of each reservoir and the acre feet in storage on October 11, 1958:

Reservoirs	Maximum storage	Dead storage	In storage 8/11/58
Fort Peck	19,412	4,535	9,025,600
Garrison	24,500	4,900	8,558,100
Ft. Randall	6,300	1,400	2,835,645
Gavin's Point	540	135	446,657
Oahe*		5,500	0
Big Bend*		450	0
			20,866,002

* Oahe has just been completed during the summer of 1958 and Big Bend has not been constructed.

The Fort Peck Reservoir was placed in operation for navigation in 1938. Power generation was started with the completion of the first power unit in July, 1943. On account of the drought period during the 30's, the reservoir was not filled to normal operating levels until 1945. The Garrison Dam came into operation in 1954, Fort Randall in 1953 and Gavin's Point in 1955.

The following table shows, in million kwh, the growth of power generation. The figures are for fiscal years, July 1 to June 30:

	1955-56	1956-57	1957-58
Fort Peck	460	522	483
Garrison	237	878	1,186
Ft. Randall	1,144	1,013	1,177
Gavin's Point	0	319	493
	1,841	2,732	3,339

During these three fiscal years the water releases have been sufficient to generate all power contracted for, supply navigation during the season, supply sufficient winter flow for sanitation and build up an accumulation of storage. Water in storage at the close of each June 30 is shown, in 1000 acre feet, in the following table:

	1955-56	1956-57	1957-58
Fort Peck	6,614	7,394	9,268
Garrison	6,680	10,258	10,145
Ft. Randall	3,052	3,787	4,098
Gavin's Point	361	420	452
	16,707	21,859	23,963

RESERVOIR CONTROL COMMITTEE, CANYON FERRY AND TIBER RESERVOIRS

A committee was organized to regulate the control of these two reservoirs. The first meeting was held at Canyon Ferry on October 18, 1956, and the second meeting was held at the Helena Civic Center on October 18, 1957.

Canyon Ferry storage is used to regulate power generation along the Missouri River while Tiber Reservoir, at the present time, is regulated for flood control. The chief objective, so far, of both of these reservoirs has been for the regulation for fish control and recreation.

PACIFIC NORTHWEST GOVERNORS' POWER POLICY COMMITTEE

This committee was organized on January 13, 1954, to study the power possibilities of the entire Columbia River watershed in the United States. A history of its organization and development may be found in the State Engineer Report

prepared two years ago. During the early part of 1958 it was decided that the committee could no longer be of service and the project was abandoned.

MISCELLANEOUS

State Water and Planning Boards - The State Engineer, by statute (Title 89, RCM 1947), is an ex-officio member of the State Water Conservation Board and the State Planning Board. The first Board was created by the Special Legislative Session of 1933-34 and the second, by the regular Session of 1935. The Planning Board had been inactive from about 1936 up to the last biennium when the Legislature of 1955 appropriated $25,000.00 for each year of the biennium to activate an industrial program. Mr. Perry Roys was appointed Director and has initiated an energetic campaign to bring industries into Montana. It is not within the scope of this report to cover the activities of either Board.

Snow Surveys - It has been the practice to hold a meeting in Billings every spring to review the results of snow surveys for the preceding winter and make estimates of the probable run-off of the Missouri River Basin. These estimates are prepared by the Soil Conservation Service and the Weather Bureau. On some occasions estimates have also been presented by the U. S. Corps of Engineers, the Bureau of Reclamation and the Montana Power Company.

Also a general meeting of all the western states is held annually to analyze the probable run-offs of all western streams, as well as explore the new uses that can be made of the data.

Sun-Teton Division - During the last year the U. S. Bureau of Reclamation submitted a reconnaisance report on the "Sun-Teton Division" of the Missouri River Basin. This report was submitted for review and comments, which were not to be in compliance with the 1944 Flood Control Act. It purposes the enlargement of the Sun River Project to supply water to 53,191 acres of new land and a supplemental supply for 3,723 acres, making a total of 66,913 acres which is scattered throughout five different units of the present Sun River Project.

The water supply is predicated on the use of the present Gibson, Pishkun and Willow Creek Reservoirs together with three new reservoirs, which are:

Upper Sun Butte, having a capacity of 260,000 acre feet.
Corson, having a capacity of 40,000 acre feet.
Collins, having a capacity of 110,000 acre feet.

If the Sun-Butte Reservoir is built, 100,000 acre feet will be reserved for flood control, 15,000 of which will be allocated from the present Gibson Reservoir. This reservation for flood control will assist in controlling floods in West Great Falls.

Ninemile Prairie - A "Proposed Report Ninemile Prairie Dam, Power Plant and Reservoir" dated June, 1958, was submitted July 31, 1958, for review and comments, which comments were not to be in compliance with the 1944 Flood Control Act. It is proposed to build a dam on Blackfoot River at Ninemile Prairie about

twenty-two miles above Bonner. The dam will be 300 feet high and 1700 feet long. The reservoir will have a storage capacity of 1,000,000 acre feet. A power plant of 60,000 kw is proposed.

It is a multipurpose project for flood control, power, navigation, irrigation and fish and recreation. The reservoir will have a length of 14 miles and a maximum width of 3 miles, flooding 11,450 acres. It is proposed to purchase a total of 18,630 acres. The reservoir will have provision for storage of 720,000 acre feet for flood control. It is estimated that the at-site power plant will develop annually 172,000,000 kwh. The benefits of the Ninemile Prairie storage will create an additional 409,000,000 kwh from the plants downstream. The at-site power plant will be connected to the existing BPA power line about midway between Hot Springs and Anaconda.

Garrison Diversion Unit - The Bureau of Reclamation submitted its report on the Garrison Diversion Unit, dated January 1957, for review. This project was authorized by the 78th Congress 2nd Session, known as the Pick-Sloan Plan (Senate Docket 191). The project consists of pumping water from the Garrison reservoir to the Snake Creek reservoir from where canals will distribute water to a total of 1,007,000 acres of land located along the Souris and Cheyenne River Basins, and the rehabilitation of Devils Lake.

It is estimated that twenty-five years will be required to build the project with an ultimate full development requiring sixty years. The State of North Dakota, through a legislative act, created a Conservancy District to assist in repayment of the project cost. The grand total cost is estimated at $695,051,000.00 (cost as of January 1956). Of this amount the reimbursable cost is $642,037,000.00, 17.4% of this is to be repaid by the irrigators and revenues from the Conservancy District. The balance is to be repaid from power revenues of the Missouri Basin.

Lower Willow Creek - This project is to be built by the Soil Conservation Service under the authority of the Watershed Protection and Flood Prevention Act. (Public Law 566, 83rd Congress; 68 Stat. 666) and amendments (Public Law 1018, 84th Congress; 70 Stat. 1088).

It is proposed to build a reservoir on Willow Creek, Granite County, to store 5100 acre feet to supply supplemental irrigation to 3134 acres, as well as prevent floods in Lower Willow Creek valley. The present Dooley Canal which diverts about one mile below the proposed dam site will be used to distribute the water.

This is the first project proposed in Montana under the above named authority. A favorable report was written for the proposal.

List of Irrigation Projects - At the annual meeting of the Montana Reclamation Association held last year in Great Falls, a resolution was passed requesting the State Engineer to prepare a list of all irrigation projects in Montana, giving the name of the project, the acres being irrigated and the name and address of the Secretary or Manager.

The work has been completed, which shows 46 Irrigation Districts, 30 State Water Conservation Board Projects, and 145 Water Users' Associations. Projects of less than 500 acres were not included in the compilation.

Water Right Laws - On August 1 and 2, 1958, a meeting was called at the University of Montana, Missoula, for the purpose of reviewing Montana's present water right laws and to study the corrections that might be made. The attendance consisted of well-informed Attorneys, Engineers and Judges, who have had a good many years of experience in dealing with water right questions. A Legislative Committee was appointed and it is quite possible that new legislation will be proposed in the Session of 1959.

Unemployment - During March, 1958, the State Engineer was requested by the Governor to submit a list of projects that might be started to alleviate the unemployment situation. The list submitted was as follows:

1. CLARK CANYON.

   Authorized. Irrigation district created. Very much desired by local people. Ready to go if money is available.

2. BIRCH CREEK.

   Located in Beaverhead County. Not authorized. Very much desired by local people. Might be started in short time if money is available.

   This project and Clark Canyon would be a big help to unemployment from Butte.

3. HELENA VALLEY.

   We want to be sure that funds are sufficient to complete the project as soon as possible.

4. MARIAS.

   Authorized. Dam and reservoir completed. Irrigation district created. Needs money to construct canal system. Not much local enthusiasm for the project.

5. YELLOWTAIL.

   Authorized. Rights-of-way questions with the Indians pending. Could be started immediately if money was available.

6. WEST SIDE CANAL.

   This is in Ravalli County. Has not been authorized. Irrigation district created. Preliminary surveys completed. Needs appropriation to start work.

Paradise Dam - On October 21, 1957, the Corps of Engineers held a public hearing in Missoula on the proposed Paradise Dam to be built on the Clark Fork River near Plains.

On January 11, 1958, a meeting was held in Missoula of the Upper Columbia

Development Council which is a committee organized to oppose the construction of big dams on the Columbia River and tributaries in Montana. In place of such developments, it proposes building many hundreds of small dams, high up in the watersheds of all tributaries where reservoirs are possible. It maintains that this plan will make all headwater tributaries live streams during the summer months, as well as supplying water for irrigation and the possibility of developing some power. The proposal will enhance fishing and recreation and serve supplemental irrigation water to the farmers. This plan is in contrast to that of building large reservoirs which will take property off the tax rolls, reduce farm income, dislocate people from their homes, and create large unsightly lakes.

Underground Water - Numerous letters come into the office reciting complaints and troubles over Water Wells. They usually expect the State Engineer to alleviate their difficulties but present laws do not grant such authority. An Underground Water Code has been submitted to the Legislative Sessions of 1953, 1955 and 1957, but each time it has failed to pass. Sooner or later such a measure should be adopted in order to protect those using water from wells.